

CHAPTER 10

SOFTWARE

10.0 Introduction

This chapter contains descriptions of software for LFWSs available from the NWS. For each software package a brief summary of the required operating environment, basic functionality, and availability is presented.

10.1 ALERT Software

ALERT software operates on the QNX-multitasking operating system for microcomputers. The recommended minimum configuration is an IBM-compatible 486 (or Pentium) with a minimum of 4 megabytes of memory and a 500-megabyte or larger hard disk. The ALERT software receives and handles all sensor data and provides a multitude of applications. Using a menu of options, the user performs routines to initialize sensor databases, tabularize data from sensor groups in easy-to-read formats, and display data graphically or numerically. In addition, databases can be edited manually and archived. Warning routines can be used to sound an alarm whenever the parameter of a specified sensor exceeds a predefined value or designated rate of change.

The ALERT software has the capability to exchange text messages between the local base station and an NWS field office via a dial-up connection. In addition, there is the option to use a stream forecasting procedure called the Sacramento-Soil Moisture Accounting Model. This model produces hydrologic forecasts describing a variety of river conditions that could result from current and/or future rainfall amounts. Use of this option requires a great deal of resident hydrologic expertise. It also requires a substantial historical local database to calibrate the model to adequately represent the local rainfall-runoff process.

Distribution

Executable code and associated user guide material may be obtained at a nominal fee (reproduction cost) from the following address:

Chief, Hydrologic Services Division
NOAA/NWS Western Region
125 South State Street, Room 1210
Salt Lake City, UT 84138

Technical Support

The Chief, Hydrologic Services Division, NWS Western Region, is responsible for the distribution of NWS ALERT software to Western Region field offices, their cooperators, and other NWS regional offices. The Hydrologic Services Division Chief of any NWS region may support and distribute NWS ALERT software beyond that mentioned above as resources permit and as specified in the MOU with a cooperator.

10.2 IFLOWS Software

IFLOWS software usually operates as a wide-area network with two-way communication capability carrying voice, data, and text messages. IFLOWS runs on any IBM-compatible personal computer operating under MS-DOS. The recommended minimum configuration is a 486 microprocessor with 4 megabytes of memory and a 120-megabyte (or larger) hard drive.

The IFLOWS software consists of two major software categories: real-time software and application programs. The real-time software performs the following tasks:

1. Acquires, verifies, stores, and distributes sensor data;
2. Accepts, stores, and distributes text products such as NWS watches, warnings, and forecasts;
3. Measures local computer system and network performance and stores and distributes their measurement data;
4. Triggers audible alarms on receipt of critical messages or when observed conditions exceed user-defined thresholds;
5. Transmits data to and receives data from other IFLOWS computer systems within a local network; and
6. Exchanges information among independent IFLOWS network via communication "bridges."

The IFLOWS applications include options to tabularize data from sensors in easy-to-read formats and display data graphically or numerically, to create and display text messages, to display site status information, etc. In addition, there are various maintenance applications that maintain the IFLOWS database.

Distribution

The IFLOWS Operational Development and Experimental Facility, maintained by the Virginia Department of Emergency Services, distributes the IFLOWS software to participating state/county IFLOWS cooperators. Included is the executable code and associated user guide material. For purposes of IFLOWS software distribution and associated technical support, an IFLOWS cooperator is defined as follows: One who has agreed, generally through a memorandum of agreement, to assist the NWS in providing an effective flood and flash flood forecast and warning service to the public through participation in the IFLOWS Program.

The NWS IFLOWS Operations Manager (NWS Eastern Region) is responsible for the distribution of software and associated support material to NWS field offices.

The IFLOWS Program Office (NWS Office of Hydrology) is responsible for handling requests for IFLOWS software from those not directly cooperating in the IFLOWS Program. These requests may be forwarded to the address below:

NWS Office of Hydrology
W/OH2 - IFLOWS Program Office
SSMC2, 8th Floor
1325 East-West Highway
Silver Spring, MD 20910-3283

Those not directly cooperating in the IFLOWS Program may obtain the IFLOWS executable code for their exclusive use and only for the stated purpose in the letter of request. The IFLOWS Program Office will make arrangements to copy and ship the code and documentation to the requestor for a nominal (reproduction) fee.

Portions of the IFLOWS software are copyrighted. Therefore, this code cannot be reproduced (except for personal backup copies) nor distributed further to any other party.

Technical Support

The NWS can provide or arrange limited amounts of resources to render technical assistance in using the software to IFLOWS cooperators. All operational participants in the IFLOWS Program are expected to develop a level of understanding of the software to deal with its day-to-day operation. The NWS will support training of its IFLOWS focal points and cooperator's primary focal points as new versions of software are released.

Operational problems, in general, should initially be directed to (1) the state IFLOWS Program Manager (by state cooperators) or (2) the NWS Implementation Manager (by NWS personnel). Operational difficulties that are time critical may be directed to the software developer.

Since the NWS has limited resources to provide technical assistance in using the software, those not directly cooperating in the IFLOWS Program will need to make arrangements with outside sources for assistance.

PC/IFLOWS Software License Agreement

Following is text from the "License Agreement for PC/IFLOWS Software."

License Agreement for PC/IFLOWS Software

1. Grant of License

The Office of Hydrology, National Weather Service, grants you, the end user, the right to copy PC/IFLOWS SOFTWARE onto a single computer system and the right for you and others to use that copy of the SOFTWARE on that single computer.

You may not transfer, lease, rent, sell, or sublicense the SOFTWARE to any person or entity. You may not reverse engineer, decompile, disassemble, or create derivative works from the SOFTWARE.

2. Ownership and Copyright Notice

The SOFTWARE is and remains the property of the United States Government or its suppliers and is protected by United States copyright laws and international treaty provisions. Therefore, you must treat the SOFTWARE like any other copyrighted material, such as a book or musical recording, except that you may make copies of the SOFTWARE solely for backup or archival purposes **provided** that all such copies carry the same copyright and other notices that appear on the original.

You may copy any written materials provided with the SOFTWARE, such as the PC/IFLOWS User Reference Guide, to whatever extent necessary for your effective use of the SOFTWARE.

3. Limitation of Liability

The National Weather Service and its suppliers have endeavored to ensure that the SOFTWARE is reliable and performs substantially in accordance with the accompanying written materials. The National Weather Service and its suppliers, however, disclaim all warranties, expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose.

In no event shall the National Weather Service or its suppliers be liable for any damages whatsoever, including, without limitation, damages for loss of business profits, business interruption, or other pecuniary loss arising out of the use of or inability to use the SOFTWARE.

4. Technical Assistance

The National Weather Service has limited resources to provide technical assistance in using the SOFTWARE. The level of support and the first echelon contact for assistance is, in part, dependent on the status of the end user. If you experience problems with the SOFTWARE or need assistance, follow the appropriate instruction below:

- a. NWS IFLOWS COOPERATOR - Contact the State IFLOWS Program Manager or his/her designated assistant for your state. If your state does not have a State Program Manager or you do not know who the State Program Manager is, contact the NWS IFLOWS Operations Manager at the NWS Eastern Region (516/244-0112).
- b. NWS PERSONNEL - Contact your Implementation Manager or his/her designated assistant.
- c. OTHER USERS - You will need to make arrangements with outside sources.

10.3 ADVIS³ Flash Flood Hydrologic Forecast Model

ADVIS is a simplified version of the hydrologic forecast models used in many of the NWS RFCs and will be replaced with more advanced hydrologic models once they are ready to be supported by NWS. ADVIS output includes the following:

1. Plots a forecast hydrograph showing the crest stage; categorical forecasts can be produced for small, ungaged streams;
2. Displays response plans; and
3. Displays significant high crests and their dates.

Input includes the following:

1. Incremental rainfall as observed and/or forecast amounts;
2. Soil moisture expressed as flash flood guidance or index;
3. A beginning river stage; and
4. Upstream reservoir releases as needed.

A separate program provides all management functions to maintain static parameters such as flood stages, rating curves, and unitgraphs.

Distribution

ADVIS, in executable code for an IBM-compatible personal computer operating under MS-DOS, may be obtained from the following address:

NWS Office of Hydrology
W/OH1 - Hydrologic Research Laboratory
SSMC2, 8th Floor
1325 East-West Highway
Silver Spring, MD 20910-3283

There is only a limited level of user documentation available for ADVIS.

Technical Support

Technical support is only available as specified under the MOU between the NWS and a cooperator.

10.4 Other Software

Information and the availability for other ALERT-type software may be obtained from the AUG (Section 11.11) and SAAS (Section 11.12).

³ ADVIS is the computer program title for the Flash Flood Hydrologic Forecast Model.